

This database, compiled by Merritt Ruhlen, contains certain kinds of linguistic and nonlinguistic information for the world's roughly 5,000 languages. This introduction will discuss the kinds of data that are surveyed. Corrections, addenda, or comments should be sent to ruhlen@santafe.edu.

DATABASE STRUCTURE.

1. Language. This database contains 5,707 records, each representing one language or dialect. The names of the languages and dialects follow the nomenclature given in my *Guide to the Languages of the World*, Vol. 1: Classification (1991).

2. Alternate Name. No attempt has been made to list every alternate name for every language. For a complete index of all language names one should consult the *Ethnologue* (2000), published by SIL International and also available on the web at <http://ethnologue.org>, and the Voegelin's *Classification and Index of the World's Languages* (1977). Alternate names are given here primarily for languages that have two names, both of which are widely used (e.g. Gilyak and Nivkh), or for a name used in a source that differs from that used here.

3. Dialect. Dialect names are given when they were mentioned in a source or where they are needed to distinguish two forms of a language.

4. Geographical Location. I have attempted to provide a geographical location for every language in this database, usually in terms of the country in which it is spoken. However, languages are often spoken in more than one country for the simple reason that there is little correlation between linguistic boundaries and political boundaries in most parts of the world. The *Ethnologue* provides the definitive answer to these questions, specifying exactly all the countries in which a given language is spoken. I list only a single country for each language, usually the country with the largest number of speakers, but sometimes the country from which the data were taken, which need not be the country with the largest number of speakers.

5. Number of Speakers. There is no more difficult task than ascertaining the number of speakers for many languages. Though I collected all of the population statistics given in the sources I used, these numbers were in many cases already out of date in the 1970's and are obviously even more so today. The *Ethnologue* is the definitive source for population statistics for all the world's languages and dialects. Where possible, I list the number of speakers for a particular dialect in parentheses following the number of speakers for the language itself. For extinct languages the data of extinction is given when it is known.

6. Genetic Classification. The genetic classification given for each language is based on that given in Volume 1 of my *Guide*, with a few exceptions. The Kusunda language is no longer listed as a Tibeto-Burman language, but rather belongs to the Indo-Pacific family. The Veddah of Sri Lanka speak a dialect of Sinhalese, but their original language, which was definitely not

Indo-European, has been lost, with only traces of it remaining in the Sinhalese dialect they speak. Elamite is treated as an independent language since its putative Dravidian affiliation has been questioned.

I have abbreviated the classification in certain cases, eliminating some intermediate nodes in order to make the classification more readable. Since the entire classification is given in Volume 1 in as much detail as I was able to ascertain, for simple taxonomic questions the reader should consult Volume 1. When sorted on the basis of the genetic classification given in Volume 1 this database will allow one to follow the linguistic topography of the world while at the same time following its genetic topography. In this way one can see how linguistic traits vary in terms of their genealogical history.

The classification given in Volume 1 can obviously be improved and we intend to allow this classification to evolve on the EHL web site, just as the typological data will also evolve with new information and corrections of errors that now exist.

SOURCES

Sources of the data given in this database are divided into four categories: dictionary, grammar, textbook, and other sources. Abbreviations used in the sources are listed at the end of this introduction.

7. Dictionary. This field contains dictionaries or word lists for a given language.

8. Grammar. This field contains grammars or grammatical sketches that deal with the entire language.

9. Textbook. This field contains textbooks for a given language.

10. Other Sources. This field contains all other sources from which data were taken.

PHONOLOGY

Phonology is the study of the sounds of language, primarily but not exclusively consonants and vowels, and it is one of the main foci of this database. No attempt will be made here to give a complete description of how all the possible consonants and vowels are produced or how they are represented in the adaptation of the International Phonetic Alphabet used in this database. There are many excellent books on just this topic. The one I would recommend is *Vowels and Consonants* (2001) by Peter Ladefoged. Lucidly written by one of the world's leading phoneticians, it also includes a CD ROM that allows one to actually hear all of the various consonants and vowels used by the world's languages and illustrated in this database by data from over 2,200 languages. The contents of this CD can also be accessed on the web at <http://hctv.humnet.ucla.edu/departments/linguistics/VowelsAndConsonants>. I will, however, give a brief description of how consonants and vowels are produced for those who have no background in phonetics.

CONSONANTS

The symbols for consonants used in this database are shown in Table 1 and are for the most part the same as those used by the International Phonetic Alphabet (IPA). I have, however, substituted different symbols for certain consonants so that, for example, in place of the IPA symbols ʃ and tʃ I have used ʂ and ʧ, which are the initial consonants in 'she' and 'chop,' respectively. I have also used a dot under a consonant to indicate retroflexion, rather than the special IPA symbols, so that ɖ and ɳ in this database correspond to IPA ɖ̡ and ɳ̡, respectively. The palatal nasal, ɲ in IPA, is here represented as ñ, and there are a few other modifications that will be mentioned below. Consonants (and vowels and glides) are enclosed in parentheses in the database to indicate they are marginal in the language concerned. Usually this means that either they are very rare or occur only in loanwords.

Table 1. Consonants

	1 ^a	2	3	4	5	6	7	8	1/8	9	10	11
STOPS	p			t̪	t	ɖ	c	k	k̠p̠	q		ʔ
	b			d̪	d	ɗ	ɟ	g	g̠b̠	ɠ		
AFFRICATES	p ^f		t̪ ^θ	t̪ ^s	t ^s t ^l	ʧ	ʧ c ^f	k ^x		q ^χ		
	b ^v		d̪ ^ð	d̪ ^z	d ^z d ^l	ɟ̺	ɟ̺ j̺	g ^l				
FRICATIVES	ɸ	f	θ	ʂ	s ʃ	ʂ ʃ̺	ʃ ʧ	x		χ	ħ	h
	β	v	ð	ʐ	z ɟ̺	ʐ ʒ̺	ʒ̺ j̺	ɣ		ʁ	ʕ	ɦ
APPROXIMANTS		ʋ		ɹ	ɻ	ɻ̺	j̺ ɥ	ɥ	w			
NASALS	m	ɱ		ɳ̪	n	ɳ̺	ɲ̺	ŋ	m̠ŋ̠	ɳ		
LATERALS				l̪	l ʃ̺	l̺	ʎ				ʎ	
TRILLS	ʙ			r̪	r	ɽ̺					ʀ	
FLAPS				ɾ̪	ɾ	ɽ̺						
EJECTIVES	p ^ʔ			t̪ ^ʔ	t ^ʔ s ^ʔ		c ^ʔ	k ^ʔ	k̠p̠ ^ʔ	q ^ʔ		
IMPLOSIVES	ɓ			ɗ̪	ɗ		ɟ̺	ɠ̺		ɠ̺		
CLICKS	⦿			/	//	!	≠					

^a The numbers at the top of the Table indicate the place of articulation of the consonants as follows: 1. bilabial, 2. labiodental, 3. interdental, 4. dental, 5. alveolar, 6. retroflex, 7. palatal, 8. velar, 1/8. labial-velar, 9. uvular, 10. pharyngeal, 11. glottal.

How are consonants produced? There are three basic parameters. First, there must be an airstream mechanism that causes air to move through the mouth. Second, this airstream is modified in certain ways. Third, the modification of the airstream can take place at different places in the vocal tract.

AIRSTREAM MECHANISMS

There are four airstream mechanisms: pulmonic, egressive glottalic, ingressive glottalic, and velaric. The pulmonic airstream is caused by the lungs pushing air through the vocal tract and out of the mouth (see Fig-

ure 1). All languages use this airstream mechanism and for most languages it is the only one used. Consonants produced with a pulmonic airstream are shown in the first block in Table 1 (stops–flaps). The egressive glottalic airstream is produced by closing the vocal cords in the glottis and, with another closure in the vocal tract (e.g. the closure involved in making a k), the glottis is *raised* so that the air in the mouth is compressed. When the second closure (for k) is released air rushes out of the mouth producing an ejective k^ʔ. Implosives are produced with an ingressive glottalic airstream. In this case the closed glottis is *lowered* and the air in the mouth is rarified. When the second closure (e.g. that involved in making a b) is released air is sucked into the mouth producing an implosive ɓ. Ejectives and implosives together are called glottalized consonants.

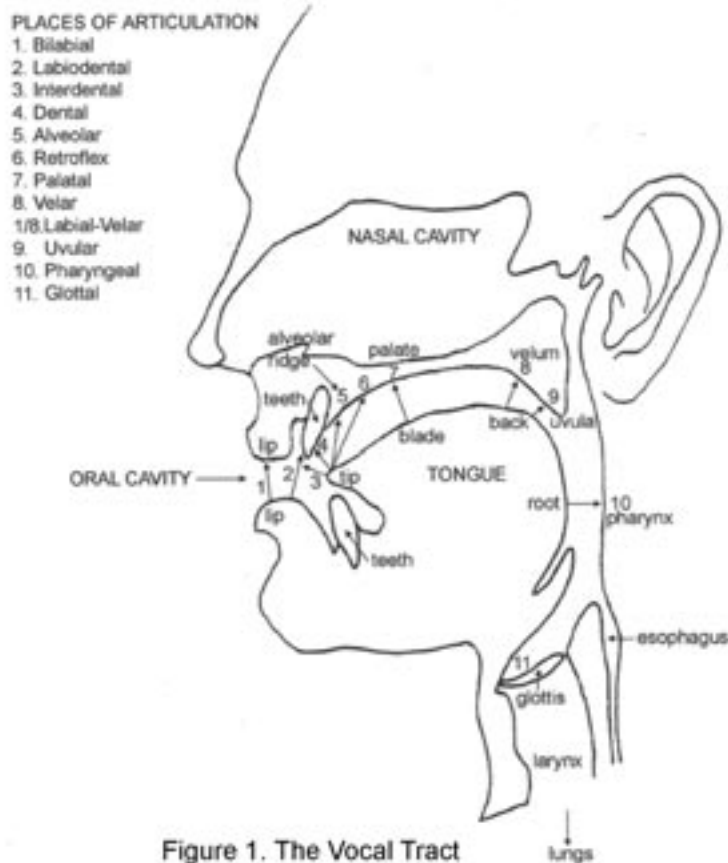
The velaric airstream produces clicks (e.g. ‘tsk tsk’ in English). This airstream is produced by (1) raising the back of the tongue to the roof of the mouth (the velum), creating a closure at the back of the oral cavity, (2) a second closure is then made at the front of the oral cavity (say for a b), (3) the body of the tongue is both lowered and drawn backward in the mouth, thereby rarifying the air in the oral cavity (as in the case of implosives), (4) the closure (for b) at the front of the oral cavity is released, allowing air outside the mouth to be sucked in, creating a clicking sound, in this case the click ɘ. This click is sometimes used in English to signify a kiss. While clicks are widely used by themselves in the world’s languages as interjections (as in the English examples just cited) their use as ordinary consonants in words is for the most part restricted to the Khoisan language family and to a few languages which have borrowed clicks from Khoisan languages (e.g. Xhosa and Zulu).

PLACE OF ARTICULATION

Once an airstream is produced it must be modified in some way (manner of articulation) at some place in the vocal tract (place of articulation) in order to make a sound. Possible places of articulation for consonants are indicated in the first row of Table 1 and are shown in Figure 1. Possible manners of articulation are listed in the first column of Table 1.

For most of the places of articulation one method of creating a consonant is by stopping the airstream with a closure somewhere in the vocal tract and then releasing it to make a sound. Consonants produced in this way are called stops (see below). A bilabial stop is made by bringing both lips together (p, b). Dental stops (e.g. t, d) are produced by moving the tip of the tongue to the back of the upper teeth and alveolar stops (t, d) are produced in a similar way except that the tip of the tongue touches the alveolar ridge, just behind the upper teeth. To make a retroflex consonant (e.g. ɖ, ɗ) the tip of the tongue is brought even further back in the mouth, making closure with the front part of the palate. The closure for palatal consonants (c, j) is made by raising the blade of the tongue to the palate. Velar consonants (k, g) and

uvular consonants ($q, ɣ$) are similar in that the back of the tongue is raised to the velum for the former and to the uvula for the latter. A glottal stop is produced by closing the vocal cords in the glottis and then releasing them, producing a brief moment of silence. We have already seen that this same action is used to produce the glottalic airstream. Labial-Velar stops ($k̠p, g̠b$) involve two simultaneous closures, one at the lips, as with bilabial stops, the other at the velum, as with velar stops. Three places of articulation do not permit complete closure, but only a partial closure that produces fricatives (see below). Labiodental fricatives (f, v) involve raising the lower lip towards the upper teeth. For interdental fricatives ($θ, ð$) the tip of the tongue is pushed



forward, just under the upper teeth. Finally, pharyngeal fricatives ($ħ, ʕ$) are produced by retracting the root of the tongue to the back wall of the pharynx.

MANNER OF ARTICULATION

The manner of articulation determines what kind of sound is produced at each place of articulation.

11. Stops. Consonants for which there is a complete closure in the vocal tract are called stops and we saw many examples above.

12. Affricates. Affricates (p^f , $t^s t^l$, $\tʃ$, k^x) are produced by two movements. First there is a complete stoppage of the airstream, as in the case of stops; second, there is a release of the stop with accompanying friction, as in the case of fricatives.

13. Fricatives. Fricatives (f , θ , s , $\tʃ$, x , h) are produced by narrowing the airstream so as to produce friction, but not so much as to actually cut off the airstream completely.

14. Approximants. Approximants are like fricatives except that there is very little friction produced. The glides j and w are often considered approximants, but we will treat them as a separate group of consonants with similarities to both consonants and vowels, as is usually done in the linguistic literature.

15. Nasals. Nasal consonants (m , n , \tilde{n} , η) are made in the same way as the voiced (vocal cords vibrating) stops b , d , $\tʃ$, g , except that air is allowed to escape through the nasal cavity as well as the oral cavity.

16. Laterals. For laterals (l , $\tʃ$, λ) the tongue makes a complete stoppage of the airstream in the middle of the roof of the mouth, but air is allowed to escape on the sides of the tongue, which is why they are called laterals.

17. Vibrants. Vibrants are a heterogeneous class of sounds, listed as trills and flaps in Table 1. They are often represented as different kinds of r 's even though the production of the various kinds of vibrants can be quite different. The two most common varieties of vibrants are the flap r and the trill r . Flap r involves the tongue flapping one time against the roof of the mouth, whereas for trill r the tongue flaps against the roof of the mouth several times in rapid succession. Spanish has both these consonants, flap r in *pero* 'but' and trill r in *perro* 'dog.' What is written r in French is the uvular trill R , and the r in American English is the retroflex approximate \mathfrak{r} .

18. Clicks. As we saw above, clicks are characterized by their unique airstream mechanism. They can be produced at five different places of articulation, but they are often modified in certain ways such that some languages have several dozen different click consonants.

19. Modified Consonants. In many languages the basic consonants listed in Table 1 can be modified in certain ways to form new, distinct consonants. In fact one such modification is already contained in Table 1, a modification that distinguishes consonants made with the vocal cords vibrating (voiced consonants) and consonants made with the vocal cords at rest (voiceless consonants). In the rows for stops, affricates, and fricatives the top row contains voiceless consonants, the second row voiced consonants. What this means is that the only difference between, say p and b (or t^s and d^z , or f and v), is that the vocal cords are vibrating when b (or d^z or v) is pronounced, whereas there is no vibration for p (or t^s or f).

Unlike the trait voiceless/voiced, which is indicated by different symbols for the voiceless and voiced pairs, most modifications are usually indicated by diacritics. For example, in many languages, in addition to the regular k ,

there is also a *k* produced with the lips rounded, *k^w*. Consonants produced with lip rounding are called labialized and are represented by a superscript *w*: *k^w*. The various diacritics used in this database to represent modifications of basic consonants are the following.

[^j]: palatalized	[[~]]: nasalized
[^w]: labialized	[:]: long
[^ɰ]: velarized	[_ˌ]: dental
[^ɠ]: pharyngealized	[_ˑ]: retroflex
[^h]: aspirated	[_ː]: fortis
[^ʔ]: glottalized	[_ː]: voiceless
[^ɓ]: voiced click	[_ː]: breathy voice
[_ˌ]: syllabic	[_ː]: creaky voice
[^{m n ŋ}]: prenasalized	

A *palatalized* consonant is one in which the basic consonant is accompanied by the simultaneous raising of the front of tongue, as in the case of the glide *j* and the high front vowel *i* (see below). A *labialized* consonant is one in which the basic consonant is accompanied by the rounding of the lips, usually with the simultaneous raising of the back of the tongue. A *velarized* consonant is a basic consonant accompanied by the raising of the back of the tongue. In many dialects of American English the *l* in ‘leak’ is plain, while the *l* in ‘full’ is velarized. A *pharyngealized* consonant is one in which the basic consonant is accompanied by the simultaneous retraction of the back of the tongue in the area of the pharynx. *Aspirated* consonants are followed by a brief puff of air following the plain consonant. In English the *p* in ‘spy’ is unaspirated, while the *p* in ‘pie’ is aspirated. *Glottalized* consonants are produced with the glottal airstream mechanism, discussed above. Clicks may be either voiceless or voiced. A superscript ^ɓ indicates that the click is voiced. / is a voiceless dental click; /^ɓ is a voiced dental click. The subscript _ˌ indicates that the consonant is *syllabic*, i.e. can form a syllable by itself. The *n* in ‘no’ is non-syllabic; the *n* in ‘button’ is in many dialects syllabic. All vowels are syllabic. *Prenasalized* consonants are basic consonants that begin with a brief nasal consonant; the most common are ^m*b*, ⁿ*d*, and ^ŋ*g*. The superscript tilde [~] is used to indicate that a vowel is *nasalized*, that is, air is allowed to escape through both the oral and nasal cavities. In French, which has nasal vowels as distinctive sounds, this difference in nasalization is the only feature separating *beau* /bo/ ‘handsome’ from *bon* /b^õ/ ‘good.’ In some languages there is a contrast between *long* and plain (short) consonants or vowels. The : following a consonant or vowel indicates length. In Italian, for example, the only difference between *fato* ‘fate’ and *fatto* ‘done’ is that in the latter the *t* has a longer duration than in the former. Long vowels are even more common than long consonants. Latin, for example, had five plain (short) vowels, *i e a o u*, and five long vowels, *i: e: a: o: u:*.

The subscript _ˌ indicates that the consonant is *dental*, i.e. pronounced with

the tip of the tongue touching the upper teeth. The *t* in French is dental t̪ , whereas the *t* in English is alveolar *t*. As described above, *retroflex* consonants are produced by the tip of the tongue bending back to touch the front of the palate. Retroflex consonants are indicated by a dot under the consonant: t̪ , d̪ , ŋ̪ . *Fortis* consonants are indicated by a subscript ̚ . The precise nature of fortis consonants varies from language to language, but in general it involves greater energy in the production of the consonant than that found in the corresponding lenis forms. The subscript ̚ indicates that the consonant or vowel is voiceless. However, since vowels are usually voiced, and for consonants the difference between voiceless and voiced is usually indicated by different symbols, this diacritic is rarely used. Voiceless vowels are rare, but do occur in some languages, such as Comanche. This diacritic is also used sometimes with consonants that are normally voiced, such as nasal consonants. In addition to normal voicing, discussed above, two other kinds of voicing are found in some languages; *breathy* voice is indicated by a subscript ̤ , while *creaky* voice is indicated by a subscript ̥ . For breathy voice there is a looser form of vibration of the vocal cords and greater airflow than for normal voicing. Creaky voice has a tighter form of vibration and less airflow than in the case of normal voicing.

In addition to these diacritics three symbols are used to represent groups of consonants: N = nasal consonants (*m*, *n*, *ŋ*); L = liquids (*l* and *r*-like sounds, *l̥*, *l̤*, *r̥*, *r̤*); G = glides (*j*, *ɥ*, *w*, *ɥ̥*).

20. Glides. Glides, which are also called semi-consonants and semi-vowels because they share properties with both, were listed in Table 1 in the line of approximants: *j*, *ɥ*, *w*, *ɥ̥*. They are, however, often considered a set of consonants which behave differently from other consonants and that view is followed here, where the glides are listed separately from the other consonants. The glides *j* and *w*, the initial sounds in English ‘yes’ and ‘we,’ are very common in the world’s languages. The other two glides are very rare. In one language, Rumanian, there is an additional glide that is represented as [ɥ̥], but I have not found this glide in any other language.

VOWELS

Like consonants, vowels are produced by modifying the airstream. However, for vowels the critical factor is the position of the tongue, which varies along two dimensions: high-low and front-back (see Table 2). If the tongue is raised in the mouth toward the roof of the mouth, we speak of high vowels; if the tongue is lowered, we have low vowels. Intermediate levels—lower-high, mid, lower-mid—are also found. The second factor involved is the position of the highest point of the tongue along the front-back parameter; if the highest point of the tongue is in the front of the mouth we speak of front vowels; if it is in the back of the mouth, we have back vowels; in-between these two positions there are also central vowels. A third factor in vowel production is lip rounding. Normally back vowels are accompanied

by lip rounding, which is more pronounced for high back vowels than for low back vowels. Front vowels and central vowels usually do not involve lip rounding. There are, nonetheless, languages which have front rounded vowels as well as languages with back unrounded vowels, though both are comparatively rare in the world's languages. French is a language that has front rounded vowels so that the only difference between *ris* [ri] 'laugh' and *rue* [ry] 'street' is that the former has a high front unrounded vowel, while the latter has a high front rounded vowel. In Table 2 unrounded vowels are in the first column under front, central and back, and rounded vowels are in the second. The symbols for vowels are essentially those of the IPA and are illustrated in Table 2.

Table 2. Vowels

	front	central	back
high	i y	ɨ ʉ	ɯ u
lower-high	ɪ ʏ	ɨ	ʉ ɯ
mid	e	ə ø	ɤ o
lower-mid	ɛ	ɐ	ʌ ɔ
low	æ	a	ɑ ɒ

21. Front Vowels. Front vowels are formed in the front of the mouth, as discussed above.

22. Central Vowels. Central vowels are formed in the middle of the mouth, as discussed above.

23. Back Vowels. Back vowels are formed in the back of the mouth, as discussed above.

24. Long Vowels. Long vowels have a longer duration than short vowels, as discussed above.

25. Nasal Vowels. Nasal vowels are formed with the air exiting through both the oral and nasal cavities, while for oral vowels the nasal cavity is closed to the exiting airstream.

26. Modified Vowels. Modification of the basic vowels was discussed above with regard to modified consonants since in a number of cases the modifications may affect either consonants or vowels (e.g. length, breathy voice, creaky voice).

The vocalic systems of many Mon-Khmer languages of Southeast Asia have what is known as *voice register*, which means that the vowels are divided into two sets that are differentiated by voice quality. In one set the voice quality is clear (V), in the other, breathy (V̤) or, sometimes, laryngealized (V̥). Gradin (1966) described the difference between the two voice qualities in Jeh as follows: "The deep vowel quality is produced by relaxing the faucal pillars, lowering the larynx, and giving increased pressure from the diaphragm. The result is a deep, somewhat gruff, voice quality. Pitch is usually lower than that of the clear form. Deepness, when occurring with short vowels, changes the vowel height, forcing it up in most instances."

27. Diphthongs and Triphthongs. Diphthongs differ from simple vowels in that the tongue moves from one vowel position to another and thus they can be represented as a sequence of two vowels. In the diphthong *ai* the tongue begins in the position of *a* and then glides upward to the position of *i*. In the literature diphthongs are sometimes represented as a sequence of a vowel and glide so that *ai* may be written as *aj*. I have followed the description of diphthongs as they are given in the sources themselves so that what is described as *ai* in one language is really no different from what is written *aj* in another language. Triphthongs are similar to diphthongs in that there is movement of the tongue from one position to another, but in the case of triphthongs there are two distinct movements, not just one as with diphthongs. Thus in the triphthong *uəi* the tongue begins in the position of *u*, then moves to the position of *ə*, and finally to the position of *i*. Where diphthongs and triphthongs are specified exactly in the source they are listed just that way in this database. In some sources, however, it is clear that there are diphthongs or triphthongs, but it is not clear exactly what they are. In such cases I have indicated this fact by simply listing ‘diphthongs’ or ‘triphthongs.’

VOWEL HARMONY

In some languages vowels are divided into two sets and in any given word only members of one set or the other may occur. The two sets are distinguished by some phonetic trait. In Turkish the eight vowels are divided into two sets of four; one set contains only front vowels, the other only back vowels. There are a number of different phonetic traits that may distinguish the two sets, including the front/back distinction as in Turkish; other traits defining vowel harmony systems are high/low, labialized/non-labialized, advanced tongue root/retracted tongue root, and nasal/non-nasal. Languages reported to have vowel harmony are indicated simply by `VOWEL HARMONY` in the field Modified Vowels, but the precise nature of the vowel harmony system is not described.

CONSONANT HARMONY

Consonant systems in some languages are, like vowel systems, divided into two sets of consonants, members of only one set being allowed in any given word. The most common type is nasal harmony, in which nasal consonants constitute one class, non-nasal consonants, the other. Languages reported to have nasal harmony are indicated by `NASAL HARMONY` in the field Modified Consonants. In some languages nasal harmony involves both consonants and vowels so that every word contains either nasal consonants and nasal vowels or non-nasal consonants and vowels.

PHONEMES AND ALLOPHONES

In addition to the knowledge of how consonants and vowels are produced, sketched above, there are certain fundamental linguistic principles that users of this database who have no linguistic background should be

aware of. The consonants and vowels listed for each language in this database have the technical name of phonemes in linguistics. A phoneme is a sound that is capable of distinguishing meaning in a given language. For example, in English *p* and *b* are different phonemes because it is only the difference between *p* and *b* that distinguishes ‘pit’ from ‘bit.’ A phoneme, however, need not be a single sound, but rather may consist of a set of different sounds even though speakers of the language hear these sounds, known as allophones, as being the same sound. In other words the consonants and vowels that one hears depend on the language spoken and not on the absolute quality of the sound.

An example of a phoneme consisting of two allophones is English *p*. Native speakers of English perceive the *p* in ‘pie’ and ‘spy’ as being identical even though they are in fact different sounds, the *p* in ‘pie’ being aspirated [p^h] and the *p* in ‘spy’ unaspirated [p]. You can convince yourself of this fact by doing a simple experiment. Light a match and hold it in front of your lips and say ‘spy spy spy pie.’ After each ‘spy’ the match remains lit, but as soon as ‘pie’ is said the match goes out. The reason for this is that the *p* in ‘pie’ is aspirated [p^h] and it is the aspiration, represented by [h] that blows out the match. Aspiration is just a puff of air. The *p* in ‘spy,’ however, is unaspirated—it is not followed by a puff of air—and the match remains lit. The English phoneme /p/ consists of two allophones: [p] only after *s*, and [p^h] everywhere else. (By convention phonemes are enclosed in slanted lines /p/, allophones in brackets [p].) It is the fact that these two sounds never occur in the same environment—and hence can never distinguish meaning—that leads English speakers to hear them as the same. That /p/ and /b/ are different phonemes in English is demonstrated by the minimal pair ‘pit’ and ‘bit,’ but there are no comparable pairs of words in English differentiated only by [p] and [p^h] because these sounds can never occur in the same environment. Which variant is used in any particular environment is automatically determined by the allophonic rule described above. As one can readily see by examining the consonant systems in different languages in this database there are in fact many languages in which /p/ and /p^h/ are different phonemes and can distinguish meaning. In Mandarin Chinese, for example, the only difference between /pèi/ ‘to memorize’ and /p^hèi/ ‘to match’ is that the former begins with an unaspirated *p*, while the latter begins with an aspirated *p^h*.

The representation of phonemes in this database differs slightly from the traditional representation. Normally any allophonic variation is ignored in representing phonemes, as is the precise phonetic nature of the phoneme. For example, both English and French have a /t/ phoneme which is usually written just this way in phonemic descriptions of both languages. However, English *t* and French *t* differ in two ways. English *t* is alveolar, which means that the tip of the tongue makes contact with the alveolar ridge on the roof of the mouth, just behind the teeth; and English *t* is usually aspirated [t^h]

(unaspirated [t] occurs only after *s*, exactly like *k*). French *t* is, however, dental [t̪], which means that the tip of the tongue touches the back of the upper teeth, not the alveolar ridge; and French *t* is almost always unaspirated. It is for these reasons that I have represented the English and French /t/ phonemes differently in this database, English /t^h/ and French /t̪/. If someone wants a more traditional representation of phonemes it is easy to eliminate the sign of aspiration [h] in English, and the dental sign [̪] in French, arriving at identical phonemes in both languages: /t/.

There is, however, a further problem of transcription that must be kept in mind. If a language has one /t/ phoneme, which is dental, it is represented as /t̪/ in this database. This means that the source used described this sound as dental. Similarly, if a source describes /t/ as alveolar, it is represented just this way. The problem that arises is that in many sources the exact place of articulation of /t/ is not mentioned (because it is not phonemic and thus can be ignored). In such cases I have just used /t/, but this means that the /t/ phonemes listed for various languages are a combination of those actually described as alveolar, and those for which the precise place of articulation was unspecified.

There is a final aspect of the representation of *t*'s that will be apparent to linguists, but could be overlooked by non-linguists. This is the fact that although English /t^h/ is usually alveolar, and French /t̪/ dental, there are languages, such as the Tiwi language of northern Australia, that have both dental /t̪/ and alveolar /t/ as distinct phonemes. This means that the exact meaning of /t̪/ depends on the language, since the meaning of a phoneme depends on its position in a phonological system.

A similar system of transcription is used for vowels, in which the phonemes are, where possible, represented by their elsewhere allophone. Many languages have two sets of vowels, distinguished by length. As we saw above, Latin had short /i e a o u/ and long /i: e: a: u: o:/, which are often described in just this manner. This is a very elegant solution, which is in some sense correct, but it conceals the fact that the place of articulation was not really the same for the long and short vowels. The short vowels were really /ɪ ɛ a ʊ ɔ/ and are so represented in this database. There is really no mystery about this; long /i:/ is pronounced with a higher tongue position in the mouth precisely because it is long and the tongue has more time to rise higher in the mouth, whereas for short /ɪ/ there is less time for the tongue to rise and it thus never gets as high as /i/.

There are important implications for such a system, for when a system based on length breaks down, as it did in Latin, the difference in tongue height (which was always present, though allophonic) may replace length as the phonemic factor, as it did in Latin. Thus, Classical Latin /e/ and /e:/, distinguished by length, had become by the time of Vulgar Latin, /ɛ/ and /e/, respectively, distinguished by tongue height. Analogous situations also occur in other vowel systems which have two sets of vowels distinguished

by one phonetic trait. The voice register systems in Mon-Khmer languages discussed above are such a case. When these systems break down, as they have in many languages, the voice register distinction is replaced by the difference in tongue height which, as in Latin, was always present, but allophonic.

28. Syllable Structure. Syllables are combinations of consonants and vowels. All languages have syllables consisting of a single vowel (V) and a consonant and a vowel (CV) and some languages have only these two syllable types. Most languages, however, also have syllables beginning and ending with a consonant (CVC), or beginning and/or ending with a consonant cluster (CCV, CVCC). In this database possible syllable types are indicated by a schema indicating all possible syllable types. Consonants in parentheses are optional so that (C)(C)V(C)(C) indicates that the language has nine possible syllable types: V, CV, VC, CVC, CCV, VCC, CCVC, CVCC, and CCVCC. In some cases the kinds of consonants found at certain places in the syllable are limited to a certain set of consonants. Thus, the schema (C)(G)V indicates that the only possible initial syllable cluster is a consonant followed by a glide. In some languages there are also syllables consisting of a single consonant, usually a nasal or liquid. The schema for such syllables involves a diacritic under the consonant; $\underset{\cdot}{N}$ indicates that nasal consonants can be syllabic by themselves.

29. Tone. Some languages, in addition to consonants and vowels, use tone to differentiate words, that is, the pitch of a syllable can distinguish different words. For example, in Mandarin Chinese there are four tones, so that the syllable *ma* represents four different words depending on the tone associated with it. With a high-level tone it means 'mother'; with a high rising tone, 'hemp'; with a low-falling-rising tone, 'horse'; and with a high falling tone, 'scold.' As can be seen in this database tone languages are particularly common in Africa and Southeast Asia, but they are also found to a lesser degree in many other parts of the world. There are a number of different ways of representing tones—diagrams and numbers are two methods—but by far the most common way in the literature is to describe the pitch just as I have done for Mandarin above. There are five levels of pitch—high, high-mid, mid, low-mid, low—and five forms of pitch movement—level, rising, falling, rising-falling, falling-rising. In addition there is sometimes a difference in voice quality so that some tones may be described as glottalized.

30. Stress. In some languages the position of stress in a word is fixed. In French stress is always on the last syllable of a word; in Hungarian it is always on the first syllable; in Polish stress is on the penultimate syllable; and in Fox it is on the antepenultimate syllable. In many languages, such as English, stress is phonemic, as seen in pairs such as the noun 'récall' and the verb 'recáll.' In other languages stress is non-phonemic, but not determined by a simple rule.

31. Noun Number. In many languages number is marked on nouns by an affix, usually either a suffix (e.g. English ‘cat’ and ‘cat-s’) or a prefix (Bantu *mu-ntu* ‘man’ and *ba-ntu* ‘men,’ in which case the singular is also overtly marked by a prefix). Number distinctions in those languages which have them are marked in terms of the following abbreviations: *s*: singular (one), *p*: plural (more than one), *d*: dual (exactly 2), *t*: trial (exactly 3).

32. Noun Classes. In some languages nouns are divided into classes, sometimes with a semantic basis, sometimes on a seemingly arbitrary basis, and sometimes with a mixture of both. These noun classes affect other grammatical structures, either in the noun phrase or in the entire sentence. The gender classes of Indo-European languages are one example, but we will discuss gender in the following section. The basis for noun classes can be quite varied, but certain categories are more common than others. Noun classes are particularly common in Africa. The Rere language of Sudan has 23 noun classes, some of which have a semantic or grammatical basis—persons, trees, common objects, long objects, large and harmful animals, hollow deep objects, small or domesticated animals, augmentatives, infinitives, liquids, body parts—but the others appear to be an arbitrary collection of nouns. Ndumu, a Bantu language spoken in Gabon has seven noun classes characterized as people, animals, plants, measures, instruments, actions, and abstractions. Bantu languages have both singular and plural noun classes, characterized by different prefixes for the various classes, and these prefixes are found not only on the noun itself, but are attached to every word in the sentence. In Swahili, for example, one noun class has the singular prefix *ki-* and the plural prefix *vi-*, as can be seen in the following two sentences:

ki-kapu ki-kubwa ki-moja ki-lianguka ‘One large basket fell.’
‘basket large one fell’

vi-kapu vi-kubwa vi-tatu vi-lianguka ‘Three large baskets fell.’
‘basket-s large three fell’

Caucasian languages also have noun classes. The Bats language has seven classes: masculine, feminine, non-rational beings, nature, things, objects, ideas; the Hunzib language has six classes: masculine, feminine, animate, mixed₁, mixed₂, the word ‘child.’

Languages of the Algonquian family in the United States, including Blackfoot, Cheyenne, Arapaho, and Ojibwa, have two noun classes: animate and inanimate. The Itonama language, spoken in Bolivia, has 17 singular classes and 5 plural classes, including classes for masculine, feminine, animate standing, animate seated, flat-round, oval, planted, liquid, long-winding, cloth, flowing, grains, pots, and canoes.

33. Gender. Gender is a well known characteristic of Indo-Hittite languages. The Anatolian branch of Indo-Hittite, which includes Hittite, had

two classes: common (masculine and feminine) and neuter. In the other branch of Indo-Hittite—Indo-European—the common class was divided into two classes, yielding three classes, masculine, feminine, and neuter, and these three classes have been preserved in the Slavic and Germanic branches. While Latin had the same three genders, the modern Romance languages, including Spanish, Italian, French, and Rumanian, have only two genders: masculine and feminine. In the Romance languages the gender of the noun determines which form of adjectives, numbers, and demonstrative pronouns are associated with the noun. For example, in Rumanian *un ciine rău* ‘a bad dog’ (literally, ‘a dog bad’) for a masculine noun, but *o pisică rea* ‘a bad cat’ (literally, ‘a cat bad’) for a feminine noun. Rumanian has in fact three noun classes, having innovated a third class, called “mixed.” In this class nouns are masculine in the singular, but feminine in the plural, as seen, for example, in *un stat bun* ‘one good state,’ but *două state bune* ‘two good states.’

In Russian gender not only affects the elements of a noun phrase, but also is reflected on the verb: *on bil* ‘he was,’ *ona bila* ‘she was,’ *ono bilo* ‘it was,’ and although gender is not reflected in the first-person pronoun, it is reflected on the verb: *ya bil* ‘I was,’ if a man is talking, but *ya bila* ‘I was,’ if a woman is talking.

34. Demonstratives. The two most common demonstrative pronoun systems in the world’s languages involve two terms, as in English ‘this’ and ‘that,’ or three terms, as in Spanish *éste* ‘this,’ *ése* ‘that,’ *aquél* ‘that yonder.’ These two systems are represented in this database as DEM: 2 and DEM: 3. Though rare, there are also some systems with a single term: DEM: 1. All other distinctions, such as ‘that above, that below, that in front, that behind,’ are specified for the language individually. The Awa language of Papua New Guinea has five demonstratives, which are represented in this database as DEM: 5: [2 + that level over there, that above over there, that below over there]. There is also a demonstrative found in many languages that is translated by phrases such as ‘that being referred to’ or ‘that just mentioned.’ This reference pronoun, which doesn’t involve spatial orientation, is represented in this database by ‘ref.’

35. Articles. Three kinds of articles are indicated for the languages that have them. The first is the indefinite article, such as English ‘a/an,’ identified as ‘indef.’ The second is the definite article, such as English ‘the,’ identified by ‘def.’ The third type, which Greenberg (1990) called a non-generic article, is identified as ‘art.’ Non-generic articles combine both definite and indefinite functions, and often evolve into what Greenberg called Stage III articles, which indicate simply that the following (or preceding) word is a noun. When Stage III articles are inflected for, say, gender this may lead to a system of noun classes based on gender.

36. Pronouns. There is no universally accepted method of representing the typological distinctions found in pronoun systems so I decided to invent

my own, which I have tried to make both simple and transparent. What I consider the basic pronoun system is shown in Table 3. Most (but not all) languages make at least these distinctions, but most languages also embellish the basics in a number of ways. The pronouns surveyed in this work are for the most part independent pronouns like ‘I, you, we.’ However, some languages do not have independent pronouns. In such cases I have used the pronominal affixes found on verbs.

Table 3. The Basic Pronoun System

	Singular	Plural
First-Person	1	4
Second-Person	2	5
Third-Person	3	6

In addition to the basic pronouns shown in Table 3 some languages have an indefinite pronoun that might be translated as ‘one.’ French *on* and German *man* are two examples of such pronouns. The presence of an indefinite pronoun is indicated in this database by ‘indef.’

GENDER

If we compare the basic pronoun system with the English pronoun system shown in Table 4 we see that English comes relatively close to the basic system, with a couple of complications. A comparison of the two systems shows

Table 4. English Pronouns

	Singular	Plural
First-Person	I	we
Second-Person	you	
Third-Person	he, she, it	they

that 1=I, 2=you, 4=we, and 6=they. The first complication is that there is no 5, which would be the second-person plural pronoun. If we went back to Old English we would find that this complication did not exist because at that time ‘thou’ was the second-person singular pronoun (2) and ‘you’ was the second-person plural pronoun (5). During the past millennium ‘thou’ disappeared from almost all English dialects and was replaced by ‘you,’ which originally was strictly plural. One might say that ‘you’ now serves the function of both 2 and 5, but it is clear that it is today basically singular. Evidence for this is the fact that English speakers feel a need to fill the hole where 5 should be. This is why different dialects have invented new forms of 5—you’s, y’all, you guys—none of which have yet established themselves in the standard language.

The second complication is that there are three forms of 3: masculine ‘he,’ feminine ‘she,’ and neuter ‘it.’ Probably most laymen would assume that a

distinction between at least 'he' and 'she' would be almost universal since every society has men and women, but as one examines the pronominal systems given in this database one finds just the opposite. Gender is a relatively rare trait in pronoun systems and most of the world's languages do not have different words for 'he' and 'she,' just one third-person pronoun that has nothing to do with gender. In the pronoun tables given in this database gender is indicated by a letter following the pronoun (m=male, f=female, n=neuter) so that the English pronoun system is represented as shown in Table 5.

Table 5. The English Pronoun System

	Singular	Plural
First-Person	1	4
Second-Person	2	
Third-Person	3mfn	6

NOUN CLASSES

As we saw above, gender is one example of the phenomenon of noun classes, in which nouns are divided into classes distinguished by a certain trait—in this case gender—but other systems of noun classes are based on other traits, and sometimes the classes are arbitrary sets of nouns. In English, gender has been lost in nouns, but still persists in the pronoun system. In Russian, nouns are still divided into three classes (masculine, feminine, neuter) and there are three different third-person pronouns, corresponding to the noun classes: *on* 'he,' *ona* 'she,' *ono* 'it.' Noun classes are indicated for those languages that have them, but details of the various systems are not always given because they are too complex for a work of this nature.

In the Grebo language of Liberia the third-person singular and plural pronouns have two forms, one for humans (h) and one for non-humans (H), as seen in Table 6.

Table 6. The Grebo Pronoun System

	Singular	Plural
First-Person	1	4
Second-Person	2	5
Third-Person	3hH	6hH

In the Dagbani language of Ghana the third-person singular and plural pronouns also have two forms, one animate (a) and one inanimate (i), as seen in Table 7.

Table 7. The Dagbani Pronoun System

	Singular	Plural
First-Person	1	4
Second-Person	2	5
Third-Person	3ai	6ai

In the Gadaba language of India the third-person singular and plural pronouns have two forms, one masculine (m) and one non-masculine (M), as seen in Table 8.

Table 8. The Gadaba Pronoun System

	Singular	Plural
First-Person	1	4
Second-Person	2	5
Third-Person	3mM	6mM

One might note that the pronominal embellishments considered up to this point seem to be associated with third-person pronouns and a perusal of the pronoun systems listed in this database shows that this is often true, but that there are cases in which gender (and similar traits) have spread to the second and first-person pronouns, as we will see below. The classic study of the origin and evolution of gender is Greenberg (1990).

INCLUSIVE-EXCLUSIVE

A different kind of trait is the inclusive-exclusive distinction that is found only in first-person plural pronouns. Many of the world's languages have two first-person plural pronouns, one called inclusive (i), the other exclusive (e). Inclusive we (4i) means 'we including the person spoken to,' whereas exclusive we (4e) means 'we excluding the person spoken to.' An example of this distinction is found in the Blackfoot language of Montana, as seen in Table 9.

Table 9. The Blackfoot Pronoun System

	Singular	Plural
First-Person	1	4ie
Second-Person	2	5
Third-Person	3	6

NUMBER

Another way that pronominal systems vary is in the category of number. The systems considered so far have only singular and plural, but many languages also have a dual (d) form to indicate exactly two, and some also have a trial (t) to indicate exactly three. A few languages have a paucal (p), which indicates 'a few.' Dual and trial pronouns are special kinds of plural pronouns, representing exactly two in the case of duals, and exactly three

in the case of trials, and this is indicated by the *d* or *t* following the normal plural pronoun, 4d 5d 6d 4t 5t 6t, all of which are single pronouns, just as are 1 2 3 4 5 6. The Southern Kiwai language of Papua New Guinea has both dual and trial pronouns, as seen Table 10.

Table 10. *The Southern Kiwai Pronoun System*

	Singular	Dual	Trial	Plural
First-Person	1	4d	4t	4
Second-Person	2	5d	5t	5
Third-Person	3	6d	6t	6

Up to this point the pronoun systems we have seen involve either traits like gender, or inclusive-exclusive, or number. These are, however, independent traits that often co-occur in pronoun systems. In the Xû language of Angola (also called Kxoe) gender occurs with all three numbers, as seen in Table 11 (c in the dual and trial forms indicates common gender [masculine + feminine]). In this table forms like 4dmfc represent three pronouns, 4dm, 4df, 4dc, just as 3mfn represents the three pronouns 3m, 3f, and 3n. There are thus 24 different pronouns represented in Table 11.

Table 11. *The Xû Pronoun System*

	Singular	Dual	Plural
First-Person	1	4dmfc	4mfc
Second-Person	2mf	5dmfc	5mfc
Third-Person	3mfn	6dmfc	6mfc

In the Qxû language of Namibia (also called !Kung) pronouns combine gender, number, and the inclusive-exclusive distinction, as seen in Table 12. There are in this language six first-person plural pronouns: 4mi, 4me, 4fi, 4fe, 4ci, and 4ce.

Table 12. *The Qxû Pronoun System*

	Singular	Dual	Plural
First-Person	1	4die	4mie 4fie 4cie
Second-Person	2	5d	5mfc
Third-Person	3	6dmfc	6mfc

Table 13 shows the numbers and letters used in representing pronoun systems. One might note that *i* may mean either ‘inanimate’ or ‘inclusive.’ This does not lead, however, to any ambiguity since inanimate *i* almost always occurs with animate *a*, predominantly in third-person pronouns, whereas inclusive *i* only occurs in first-person plural pronouns, almost always in conjunction with exclusive *e*. A few other parameters that are extremely rare are handled individually for the languages concerned.

Table 13. Parameters of Pronoun Systems

1: first-person singular	h: human
2: second-person singular	H: non-human
3: third-person singular	m: masculine
4: first-person plural	M: non-masculine
5: second-person plural	f: feminine
6: third-person plural	F: non-feminine
d: dual	c: common (masculine + feminine)
t: trial	n: neuter
p: paucal	v: vegetable
i: inclusive	P: plain
e: exclusive	s: specific
a: animate	S: non-specific
i: inanimate	

In some parts of the world pronouns may express politeness, social standing or the like. Since there is little cross-linguistic comparability for such forms they are treated individually on a language by language basis. In many languages third-person pronouns are really demonstrative pronouns functioning as independent pronouns. Such forms are indicated by a preceding * (e.g. *3 *6d *6). Forms enclosed in parentheses are rare or marginal in the given language, thus 4(ie) might indicate that an inclusive-exclusive distinction exists, but is seldom used.

37. Word Order. In this database I have surveyed seven kinds of word order: (1) Subject (S)-Verb (V)-Object(O), (2) Adjective (A)-Noun (N), (3) Genitive (G)-Noun, (4) Demonstrative Pronoun (D)-Noun, (5) Number (NUM)-Noun, (6) Possessive Pronoun (POSS)-Noun, and (7) Noun Phrase: Demonstrative-Number-Adjective-Noun. In the first case both subject and object are nouns. In many languages the order of S, O, and V differs when S and O are nouns from that used with pronouns. For example, in French the order with nouns is SVO, *Le père voit son fils* 'The father sees his son,' but with pronouns the order is SOV, *Il le voit* 'He sees him.'

In English the seven categories of word order are represented as:

SVO AN GN/NG DN NUM-N POSS-N D+Num+A+N

GN/NG indicates that English has both constructions (e.g. the boy's book [GN] vs. the book of the boy [NG]). In some cases a language will have two constructions for a given category, but one of them is clearly dominant. An example is the order of adjectives and nouns in French. Generally the adjective follows the noun, e.g. *le livre noir* 'the black book,' but a few adjectives precede the noun, e.g. *un bon livre* 'a good book.' In such cases the less common variant is enclosed in parentheses: NA/(AN).

38. Ergative. In Indo-European languages such as Latin the subject of a transitive verb and the subject of an intransitive verb are marked in the

same way, by a nominative suffix, whereas the object of a transitive verb is marked by an accusative suffix. In ergative languages the subject of an intransitive verb and the object of a transitive verb are marked in the same way by an absolutive affix, whereas the subject of a transitive verb is marked by an ergative affix. I have indicated ergative languages by 'erg.' However, ergative languages are often not overtly identified in the literature so there are certainly many more ergative languages than those identified in this database. This category will have to be fleshed out in considerably more detail before the exact distribution of ergative and accusative languages becomes clear.

39. Noun Incorporation. Noun incorporation is a process, common in some languages, whereby a noun is incorporated into a verb, forming a new lexical item. It is somewhat similar to compounding, such as English 'birdwatching.' Languages reported to have noun incorporation are identified here by 'noun incorp.' However, as with the case of ergative, there are many languages with noun incorporation that are not so identified in this database so that further work is needed before the exact distribution of noun incorporation is clear.

40. Prepositions/Postpositions. In English, prepositions precede the noun, as in 'at that building.' In other languages, however, such items follow the noun and are therefore called postpositions. An example is Japanese *ano biru de* 'that building at.' Prepositions are indicated by PREP and postpositions by POST.

41. Comments. This field contains comments which apply to individual languages, sometimes clarifying aspects of the language discussed in the other fields.

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ABBREVIATIONS

- AA *American Anthropologist*. Washington, D.C.
- AAS *Austroasiatic Studies*, 2 vols., ed. Philip N. Jenner, Laurence C. Thompson, and Stanley Starosta. Honolulu, 1976.

- AEL *Afrique et Langage*. Paris.
- AfL *African Languages*. London.
- AFL *Afroasiatic Linguistics*. Malibu, Calif.
- AGT "Une aire de génération de tons en Afrique centrale," Luc Bouquiaux and Jacqueline M. C. Thomas. 1975. In *Actes du 2e colloque de linguistique fonctionnelle*, 201–24.
- AI *America Indigena*. Mexico City.
- AIAS *Australian Institute of Aboriginal Studies*. Canberra.
- AIED *Ancient Indo-European Dialects*, ed. Henrik Birnbaum and Jaan Puhvel. 1966. Berkeley.
- AL *Anthropological Linguistics*. Bloomington, Ind.
- ALR *African Language Review*. London.
- ALS *African Language Studies*. London.
- ANLGS *Austronesian Languages*, ed. S. A. Wurm. 1976. PL C39.
- ANS *Austronesian Studies*, ed. Paz Buenaventura Naylor. Ann Arbor, Mich., 1980.
- ARA *Annual Review of Anthropology*. Palo Alto.
- AS *Afroasiatic: A Survey*, ed. Carleton T. Hodge. The Hague, 1971.
- ASAL *American Studies in Altaic Linguistics*, ed. by Nicholas Poppe. Bloomington, Ind., 1962.
- ASEMI *Asie du Sud-Est et Monde Insulinien*. Paris.
- ASI *Aztec Studies I*, ed. Dow F. Robinson. 1969. SIL 19.
- ASP "Austroasiatic Subgroupings and Prehistory in the Malay Peninsula," Geoffrey Benjamin. 1976. In *AAS 1*: 37–128.
- AU *Afrika und Übersee*. Berlin.
- BAEB *Bureau of American Ethnology Bulletin*. Washington, D.C.
- BIG *Bolivian Indian Grammars*, 2 vols., ed. Esther Matteson. 1967. SIL 16.
- BLF "The Binandere Language Family," Darryl Wilson. 1969. PL A18: 65–86.
- BLS (*Proc. Annual Meeting of the*) *Berkeley Linguistic Society*. Berkeley, Calif.
- BSELAF *Bulletin de la société pour l'étude des langues africaines*. Paris.
- BSLP *Bulletin de la Société Linguistique de Paris*. Paris.
- BSOAS *Bulletin of the School of Oriental and African Studies*. London.
- CAAL *Computational Analyses of Asian and African Languages*. Tokyo.
- CAL Center for Applied Linguistics. Arlington, Va.
- CBH "On Classifying Bushman and Hottentot Languages," E. O. J. Westphal. 1962. *ALS 3*: 30–48.
- CLS (*Papers from the Regional Meeting of the*) *Chicago Linguistic Society*. Chicago.
- CNRS Centre Nationale de la Recherche Scientifique. Paris.
- CS "Comparative Siouan I-III," Hans Wolff. 1950. *IJAL 16*: 61–6, 113–21, & 168–78.

CSAL	<i>Comparative Studies in Amerindian Languages</i> , ed. Esther Matteson. The Hague. 1972.
CSDP	<i>Clause, Sentence, and Discourse Patterns in Selected Languages of Nepal</i> , 4 vols., ed. Austin Hale. 1973. SIL 40.
CTIL	<i>Current Trends in Linguistics</i> , 14 vols., ed. Thomas A. Sebeok. The Hague, 1963–76.
CUDP	<i>Cornell University Data Paper</i> . Ithaca, N.Y.
CUP	Cambridge University Press
D	dialect
DFL	<i>Daly Family Languages, Australia</i> , D. T. Tryon. 1974. PL C32.
DG	<i>Discourse Grammar: Studies in Indigenous Languages of Colombia, Panama, and Ecuador</i> , 3 vols., ed. Robert E. Longacre. 1976–77. SIL 52.
Diss	Dissertation
DSA	<i>Die Sprachen Afrikas</i> , ed. Bernd Heine, Thilo C. Schadeberg, and Ekkehard Wolff. Hamburg, 1981.
DSML	<i>Discourse Studies in Mesoamerican Languages</i> , vol. 1, ed. Linda K. Jones. Dallas, 1979.
EB	<i>Encyclopaedia Britannica</i> .
EXB	<i>L'expansion bantoue</i> , 3 vols., ed. Larry M. Hyman [I], Jan Voorhoeve [I], and Luc Bouquiaux [II-III]. Paris, 1980.
GELB	<i>Gramaticas estructurales de lenguas bolivianas</i> , 3 vols. Riberalta, Bolivia, 1965.
GR	<i>Genetic Relationship, Diffusion and Typological Similarities of East & Southeast Asian Languages</i> , ed. Mantaro J. Hashimoto. Tokyo, 1976.
GSAIL	<i>The Grouping of South American Indian Languages</i> , Mary Ritchie Key. Tübingen, West Germany, 1979.
GUPLL	[Riley (Socio) & Lado (psycho)] probably Georgetown University Publications in Languages and Linguistics.
HAIL	<i>Handbook of American Indian Languages</i> , 2 vols., ed. Franz Boas. Washington, D.C., 1911, 1922.
HAL	<i>Handbook of Australian Languages</i> , ed. R. M. W. Dixon and Barry J. Blake, Amsterdam. [vol. 1: 1979, vol. 2: 1981]
HNAI	<i>Handbook of North American Indians</i> , 20 vols., ed. William C. Sturtevant. Washington, D.C., 1978–.
HPL	"Preliminary Observations on Huon Peninsula Languages," K. A. McElhanon. 1967. OL 6: 1–45.
HS	<i>Hokan Studies</i> , ed. Margaret Langdon and Shirley Silver. The Hague, 1976.
HSL	Hartford Studies in Linguistics. Hartford, Conn.
IEL	<i>Inventaire des études linguistiques sur les pays d'Afrique noire d'expression française et sur Madagascar</i> , ed. Daniel Barreteau. Paris, 1978.
IFAN	Institut français d'Afrique noire. Dakar, Senegal.

- IIFL *Indo-Iranian Frontier Languages*, 3 vols., by Georg Morgenstierne. Oslo, 1929–67.
- IJAL *International Journal of American Linguistics*. Chicago.
- IJDL *International Journal of Dravidian Linguistics*. Trivandrum, India.
- IL *Indian Linguistics*. Pune, India.
- IU Indiana Univ.
- J Journal
- JAL *Journal of African Languages*. London.
- JL *Journal of Linguistics*. Cambridge, Eng.
- JNS *Jazyki narodov SSSR*, 5 vols. Moscow, 1966–68.
- JPS *Journal of the Polynesian Society*. Wellington, New Zealand.
- JAOS *Journal of the American Oriental Society*. New Haven, Conn.
- JRAS *Journal of the Royal Asiatic Society*. London.
- JWAL *The Journal of West African Languages*. London.
- LA *Linguistic Analyses: The Non-Bantu Languages of North- Eastern Africa*, A. N. Tucker and M. A. Bryan. London, 1966.
- LCY *Languages of Cape York*, ed. Peter Sutton. Canberra, 1976.
- LDM *Les langues dans le monde ancien et moderne*, ed. Jean Perrot. Paris, 1981.
- LE *Language in Ethiopia*, ed. M. Lionel Bender, et al. London, 1976.
- Lg *Language*. Baltimore.
- LG *Languages of Guatemala*, ed. Marvin Mayers. The Hague, 1966.
- LL *Le langage*, ed. André Martinet. Paris, 1968.
- LLS "Languages of the Lumi Sub-District," by D. C. Laycock. 1968. *OL* 7: 36–66.
- LMS *Les langues mandé-sud du group mana-busa*, A. Prost. Dakar, Senegal, 1953.
- LNA *The Languages of Native America*, ed. Lyle Campbell and Marianne Mithun. Austin, Tex., 1979.
- LND *Linguistics and Neighboring Disciplines*, ed. Renate Bartsch and Theo Vennemann. Amsterdam, 1975.
- LOA *The Languages of Australia*, by R. M. W. Dixon. Cambridge, Eng., 1980.
- LOG *Languages of the Guianas*, ed. Joseph E. Grimes. 1972. *SIL* 35.
- LSA Linguistic Society of America.
- LSGD *The Linguistic Situation in the Gulf District and Adjacent Areas, Papua New Guinea*, ed. Karl Franklin. 1973. *PL* C26.
- LSNA *Linguistic Structures of Native America*, ed. C. Osgood. New York, 1946.
- LSNBB *Linguistic Survey of the Northern Bantu Borderland*, 4 vols. London.
- LSNC *Linguistic Studies of Native Canada*, ed. Eung-Do Cook and Jonathan Kaye. Vancouver, 1978.
- LSU *The Languages of the Soviet Union*, Bernard Comrie. Cambridge, Eng., 1981.

LTS	[?check] <i>Languages and their Speakers</i> , ed. Timothy Shopen. Cambridge, Mass., 1979. [Maninka, Malagasy, Guugu Yimidirr; check also LT Status]
LWA	<i>The Languages of West Africa</i> , Dietrich Westermann and M. A. Bryan. London, 1952.
MIL	<i>A Comparative Study of the Melanesian Island Languages</i> , Sidney Herbert Ray. Cambridge, Eng., 1926.
MKS	<i>Mon-Khmer Studies</i> . Honolulu.
ML	<i>The Melanesian Languages</i> , Robert Codrington. Oxford, 1885.
MSI	<i>Mayan Studies I</i> , ed. Benjamin Elson. 1960. SIL 5.
MSILI	<i>Miscellaneous Studies in Indonesian and Languages in Indonesia</i> . Jakarta.
MYLS	<i>Miao and Yao Linguistic Studies</i> , ed. Herbert C. Purnell. 1972. CUDP 88.
NATS	<i>Native American Texts Series</i> . Chicago.
NBL	<i>The Non-Bantu Languages of North-Eastern Africa</i> , A. N. Tucker and M. A. Bryan. London, 1956.
NLA	<i>Native Languages of the Americas</i> , 2 vols., ed. Thomas A. Sebeok. New York, 1976–77.
NPL	<i>A Subgrouping of Nine Philippine Languages</i> , Teodoro A. Llamzon. The Hague, 1969.
NS	<i>Nilo-Saharan</i> , ed. Thilo C. Schadeberg and M. Lionel Bender. 1981. Dordrecht.
NSLE	<i>The Non-Semitic Languages of Ethiopia</i> , ed. M. Lionel Bender. 1976. East Lansing, Mich.
OELS	<i>Origins and Evolution of Language and Speech</i> , ed. Steven R. Harnad, Horst D. Steklis, and Jane Lancaster. New York, 1976.
OL	<i>Oceanic Linguistics</i> . Honolulu.
OLM	<i>Oceania Linguistic Monographs</i> . Sydney.
OLSP	<i>Oceanic Linguistic Special Publications</i> . Honolulu.
OPYT	<i>Opyt istoriko-tipologicheskogo issledovaniya iranskix jazykov</i> , vol. 1, V. S. Rastorgueva and D. I. Edel'man. Moscow, 1975.
PCSD	<i>Patterns in Clause, Sentence, and Discourse in Selected Languages of India and Nepal</i> , 4 vols., ed. Ronald L. Trail. 1973. SIL 41.
PFAL	<i>Phonologies of Five Austronesian Languages</i> . Ukarumpa, Papua New Guinea, 1975.
PL	<i>Pacific Linguistics</i> . Canberra.
PLAA	<i>Papers on the Languages of the Australian Aborigines</i> , ed. Richard Pittman and Harland Kerr. Canberra, 1964.
PLNGLS	<i>Papuan Languages and the New Guinea Linguistic Scene</i> , ed. S. A. Wurm. 1975. PL C38.
PML	<i>Philippine Minor Languages: Word Lists and Phonologies</i> , Lawrence A. Reid. Honolulu, 1971.
PNG	Papua New Guinea

- POLAA *Papers on the Languages of Australian Aboriginals*, B. J. Blake, et al. Canberra, 1971.
- PSCL *Phonemic Systems of Colombian Languages*, ed. Benjamin F. Elson. 1967. SIL 14.
- PUF Presses Universitaires de France. Paris.
- RPTP *Reconstruction of Proto-Tsouic Phonology*, Shigeru Tsuchida. Tokyo, 1976.
- SAIL *Studies in American Indian Languages*, ed. Jesse Sawyer. 1971. UCPL 65.
- SAL *Studies in African Linguistics*. Los Angeles.
- SCAL *Studies in Comparative Austroasiatic Linguistics*, ed. Norman H. Zide. The Hague, 1966.
- SCL *Studies in California Linguistics*, ed. William Bright. 1964. UCPL 34.
- SCOPIL *Southern California Occasional Papers in Linguistics*. Los Angeles.
- SELAF *Société pour l'étude des langues africaines*. Paris.
- SEIL *Studies in Ecuadorian Indian Languages*, ed. Benjamin Elson. 1962. SIL 7.
- SIL Summer Institute of Linguistics. Arlington, Tex. [Publication series issued at Arlington; individual works published by SIL branches around the world]
- SK *A Survey of Kordofanian*, 4 vols., Thilo C. Schadeberg. Hamburg, 1981- .
- SLCSEP *Studies in Languages of Central and South-East Papua*, ed. T. E. Dutton. 1975. PL C29.
- SLLR *Sierra Leone Language Review*. Fourah Bay, Sierra Leone.
- SMSUTL *A Survey of Materials for the Study of the Uncommonly Taught Languages*, 8 vols., ed. Dora E. Johnson et al. Arlington, Va., 1976.
- SPG "Salish Phonologic Geography," Morris Swadesh. 1952. Lg 28: 232-48.
- SPIL *Studies in Peruvian Indian Languages I*, ed. Benjamin F. Elson. 1963. SIL 9.
- SSL *South Sea Languages*, vol. 2, D. MacDonald. Melbourne, 1891.
- STAL "Subsystem Typologies and Area Linguistics," Hans Wolff. 1959. AL 1,7: 1-88.
- SUAG *Studies in Uto-Aztecan Grammar*, 4 vols. 1977-84. SIL 56.
- SUGIA *Sprache und Geschichte in Afrika*. Hamburg.
- SUL *Survey of the Uralic Languages*, Björn Collinder. Stockholm, 1969.
- TAPS *Transactions of the American Philosophical Society*. Philadelphia.
- TEAL *Trends in European and American Linguistics: 1930-1960*, ed. Christine Mohrmann, Alf Sommerfelt, and Joshua Whatmough. Utrecht, 1961.
- TJD *Tsezskie (didojskie) jazyki dagestana*, E. A. Bokarev. Moscow, 1959.
- TNL *Twelve Nigerian Languages*, ed. Elizabeth Dunstan. New York,

- 1969.
- TNTS *Ten Nigerian Tone Systems*, ed. John Bendor-Samuel. *Studies in Nigerian Languages*, No. 4.
- TS *Tupi Studies I*, ed. David Bendor-Samuel. 1971. *SIL* 29.
- UACS *Uto-Aztecan Cognate Sets*, Wick R. Miller. 1967. *UCPL* 48.
- UCPAAE *University of California Publications in American Archaeology and Ethnology*. Berkeley, Ca.
- UCPL *University of California Publications in Linguistics*. Berkeley, Ca.
- USA United States of America
- VSFNGL *Verb Studies in Five New Guinea Languages*. 1964. *SIL* 10.
- ZDMG *Zeitschrift der Deutschen Morgenländischen Gesellschaft*.